

Application Number 10/784,124
Responsive to Office Action mailed July 26, 2006

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REMARKS

This amendment is responsive to the Office Action dated July 26, 2006. Applicant has amended claims 1, 12, and 26, and canceled claims 2, 16, and 27. Claims 1, 4-15, 18-26, and 28-35 are pending.

Claim Rejection Under 35 U.S.C. § 112

In the Office Action, the Examiner rejected claims 1 and 26 under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. In particular, the Examiner stated that it is not clear whether the phrase "a dimension M" in claims 1 and 26 refers to the thickness, the width, or the length of the RFID tag. Applicant submits the phrase "a dimension M" of the RFID tags is clear, particularly in view of the specification, and that Applicant need not limit the claims to a particular dimension of the RFID tag.

Nonetheless, Applicant has amended claims 1 and 26 to recite "a maximum dimension M." Applicant submits that claims 1 and 26, as amended, particularly point out and distinctly claim the subject matter, as required by 35 U.S.C. 112, second paragraph. Moreover, as this requirement was present with cancelled dependent claims 2 and 27, no new issues have been raised and a new search should not be required.

Claim Rejection Under 35 U.S.C. § 103

In the Office Action, the Examiner rejected claims 1, 2, 4-12, 14, 15, 16, 18-20, 26-33 under 35 U.S.C. 103(a) as being unpatentable over de Vall (US 5,608,417). Applicant respectfully traverses the rejection to the extent such rejection may be considered applicable to the claims as amended. De Vall fails to disclose or suggest the inventions defined by Applicant's claims, and provides no teaching that would have suggested the desirability of modification to arrive at the claimed invention.

With reference to independent claims 1, 12, and 26, for example, de Vall lacks any teaching or suggestion of an antenna comprising a plurality of conductive loops to produce an electromagnetic field for RFID communication with RFID tags. De Vall also fails to teach or

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suggest that the conductive loops of the antenna are spaced apart at least a distance D greater than or equal to a maximum dimension M of the RFID tags.

Instead, de Vall describes an RF transponder system including a transponder (i.e., an RFID tag itself) having a transponder antenna implemented as a pair of aligned coils on opposite sides of a thick dielectric substrate. The substrate of the RFID tag has a thickness of about 25 microns to obtain a mutual inductance between the coils.¹ The Examiner referred to FIG. 1 of de Vall with reference to the rejection of independent claims 1, 12, and 26. FIG. 1 of de Vall is an exploded perspective view of a transponder. The two coils 4, 6 are part of the transponder (i.e., the RFID tag), and are located on opposite sides of the substrate.

The Examiner referred to element 20 of the transponder as a "tag." However, the entire transponder of FIG. 1 is the "tag," while element 20 is an IC chip 20 component of the transponder, or tag, of FIG. 1. The coils 4 and 6 clearly do not produce an electromagnetic field for RFID communication with RFID tags, as required by claims 1, 12, and 26, since the coils are part of the tag itself. Independent claim 12, which recites an RFID system comprising an RFID tag, and an antenna having a plurality of conductive loops to produce an electromagnetic field for communicating with the RFID tag, further underscores the inapplicability of the de Vall reference to Applicant's invention as claimed.

Claims 1, 12, and 26 as amended also require that conductive loops of the antenna are spaced at least a distance D greater than or equal to a maximum dimension M of the RFID tags. De Vall fails to teach or suggest this feature. For example, the conductive coils 4, 6 of the transponder are part of the RFID tag, and so an assertion that the coils within the tag can be spaced apart a distance greater than any dimension of the tag is simply nonsensical.

The Examiner acknowledged that de Vall does not disclose the relationship between the dimension of the RFID tags and the distance between the conductive traces of the antenna for interrogating the RFID tags. Nonetheless, the Examiner stated that the relationship between the dimension of the tag and the distance between the conductive traces is considered an obvious matter of design choice depending on the desired characteristic of the antenna system. Applicant respectfully disagrees. De Vall provides no teaching that would have suggested considering the dimensions of the RFID tags when selecting a distance between conductive loops in an antenna

¹ de Vall, Abstract.

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that produced the RF field for interrogating those RFID tags. De Vall certainly provides no suggestion that the distance between conductive loops in the antenna that produces the RF field exceed a dimension of the RFID tag. As described by Applicant's specification:

Conventional antennas for RFID readers have a single inductive loop and operate in a relatively high frequency range, e.g., 3 megahertz (MHz) to 30 MHz. Consequently, these antennas tend to create magnetic fields that suffer from "holes," i.e., regions in which an RFID tag cannot be read even though the RFID tag is located relatively near the antenna. For example, depending on the orientation and location of the article to which the RFID tag is affixed, in some situations the RFID tag may be centered above a single turn of the inductive loop of the antenna during interrogation. In this situation, substantially equal current may be imposed on opposite sides of the RFID tag, which leads to a cancellation effect. As a result, the RFID tag may not be able to achieve RFID communication with the reader.²

Similarly, De Vall describes an exciter/reader 32 having a single antenna 36 for transmitting excitation signals that are transmitted to the transponder.³ De Vall provides no teaching or suggestion of forming the antenna of exciter/reader 32 in the manner of Applicant's independent claims so as to avoid the problems of "holes" in the magnetic field suffered by conventional readers.

It is well established that the Examiner bears the burden of establishing a prima facie case of obviousness.⁴ In doing so, the Examiner must determine whether the prior art provides a "teaching or suggestion to one of ordinary skill in the art to make the changes that would produce" the claimed invention.⁵ A prima facie case of obviousness is established only when this burden is met.

In view of the teachings of de Vall, one of ordinary skill in the art would have found no suggestion to pursue the modification proposed by the Examiner. Moreover, even if such a modification were somehow undertaken, the result would not conform to the requirements of Applicant's claimed invention, since the teachings of de Vall that the Examiner proposes to modify include antennas that are part of an RFID tag, and not for producing an electromagnetic field for RFID communication with the RFID tag.

² Specification at para. [0006] (emphasis added).

³ De Vall, col. 6, ll. 13-18.

⁴ *In re Oetiker*, 24 USPQ2d 1443, 1445 (Fed. Cir. 1992).

⁵ *In re Chu*, 36 USPQ2d 1089, 1094 (Fed. Cir. 1995).

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Of course, the claims dependent on independent claims 1, 12, and 26, i.e., claims 2, 4-11, 14, 15, 16, 18-20, 27-33, incorporate all of the limitations of the respective base claims, and therefore are patentable for at least the reasons expressed above. Moreover, the dependent claims recite additional features that are likewise not suggested by de Vall. For example, claim 6 requires that the plurality of conductive loops form a dual-loop structure having an inner loop and an outer loop. De Vall fails to teach or suggest such features.

For at least these reasons, the Examiner has failed to establish a prima facie case for non-patentability of Applicant's claims 1, 2, 4-12, 14, 15, 16, 18-20, 26-33 under 35 U.S.C. 103(a). Withdrawal of this rejection is requested.

Rejection for Obviousness-type Double Patenting:

The Examiner provisionally rejected claims 1, 2, 6, 12, 16, 22-28, 31 and 33-35 under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-5 and 13-16 of co-pending Application No. 10/874,109.

Applicant assumes that the Examiner is actually referring to Application No. 10/784,109. Applicants note the provisional status of this rejection. Accordingly, Applicants will address this issue if and when the rejection is formally applied.

CONCLUSION

All claims in this application are in condition for allowance. Applicant respectfully requests reconsideration and prompt allowance of all pending claims. Please charge any additional fees or credit any overpayment to deposit account number 50-1778. The Examiner is invited to telephone the below-signed attorney to discuss this application.

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By:

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